

Claim Amendments

Please amend claims 1, 5, 6, 8-19, 12-20 as follows.

Please cancel claims 2-4 and 7 as follows.

Please add new claims 21-24 as follows:

1. (currently amended) A method for ~~using an isotropic wet etching process chemical process~~ for isotropically trimming semiconductor feature sizes with improved critical dimension ~~control~~ uniformity over a process wafer surface comprising the steps of:

~~providing a hard mask overlying a substrate included in a semiconductor wafer said hard mask patterned for masking a portion of the substrate for forming a semiconductor feature according to an anisotropic plasma etching process;~~

providing a substrate comprising an uppermost patterned hard mask nitride layer free of overlying photoresist;

isotropically wet etching the hard mask to isotropically reduce a dimension of the hard mask dimensions wherein the wet etching process is selected from the group consisting of spin-spray etching and immersion etching; and,

anisotropically plasma etching through a thickness [a] portion of the substrate ~~not covered by the~~ according to the hard mask to form the semiconductor feature.

2. - 4. (cancelled)

5. (currently amended) The method of claim [4] 1, wherein the ~~at least one metal nitride layer includes at least one~~ hard mask comprises a material selected from the group consisting of silicon nitride, silicon oxynitride, and titanium nitride.

6. (currently amended) The method of claim 1, wherein the substrate ~~includes~~ comprises a polysilicon layer overlying a silicon substrate.

7. (cancelled)

8. (currently amended) The method of claim 1 [7], wherein the ~~step of spin-spray wet etching process includes~~ comprises the step of simultaneously spinning the semiconductor wafer while spraying the a wet etching solution onto the hard mask.

9. (currently amended) The method of claim 8, wherein the ~~step of~~ simultaneously spinning ~~includes~~ comprises a spin rate of about 300 to about 2000 revolutions per minute.

10. (currently amended) The method of claim [1] 8, wherein the ~~step of isotropically wet etching includes the use of a wet~~ etching solution ~~comprising~~ hydrofluoric acid (HF) and glycol.

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11. (original) The method of claim 10, wherein the wet etching solution has a temperature of about 20°C to about 90°C.

12. (currently amended) The method of claim 11, wherein the wet etching solution ~~includes~~ comprises ~~a mixture of hydrofluoric acid (HF) and glycol within a range of concentration of from about a ratio of 1 part HF to 10 parts glycol to about a ratio of 1 part HF to 100 parts glycol.~~

13. (currently amended) The method of claim [1] 8, wherein the ~~step of isotropically wet etching includes the use of a wet etching solution comprising~~ a mixture of water (H₂O) and hydrofluoric acid (HF) within a range of at a concentration of about a ratio of 20 parts H₂O to 1 part HF to about a ratio of 400 parts H₂O to 1 part HF.

14. (currently amended) The method of claim 1, wherein the step of isotropically wet etching ~~includes the use of~~ comprises immersion in a wet etching solution comprising ~~a mixture of a phosphoric acid solution comprising at least 80% by weight of phosphoric acid at a temperature of about 150°C to about 180°C.~~

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15. (currently amended) A method for forming ~~a semiconductor feature on a semiconductor wafer~~ gate structures with improved CD uniformity across a semiconductor wafer process surface comprising the steps of:

providing a semiconductor wafer ~~including multiple layers comprising at least one a metal~~ nitride layer overlying a polysilicon containing layer;

photolithographically patterning a photoresist layer over the ~~metal~~ nitride layer to form a patterned etching surface;

~~anisotropically~~ plasma etching through a thickness of the ~~patterned etching surface~~ the nitride layer to ~~reveal a first exposed portion of the polysilicon containing layer~~ form a hard mask according to a plasma etching process;

removing the photoresist layer to form a wet etching surface comprising sidewall and upper surface of the hard mask;

isotropically wet etching the hard mask according to a spin-spray wet etching process comprising HF to isotropically reduce the hard mask dimensions ~~a width portion of the at least one metal nitride layer to reveal a second exposed portion of the polysilicon containing layer~~; and,

~~anisotropically~~ plasma etching through the ~~second exposed portion of the polysilicon layer~~ according to the hard mask to form a ~~semiconductor feature~~ gate structure.

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16. (currently amended) The method of claim 15, wherein the step of isotropically wet etching ~~according to a wet etching process~~ ~~includes~~ comprises ~~using~~ an etching solution with a temperature of about 20°C to about 90°C.

17. (currently amended) The method of claim 15, wherein the step of isotropically wet etching ~~according to a wet etching process~~ ~~includes~~ comprises the steps of simultaneously spinning the semiconductor wafer while spraying an etching solution onto the wet etching surface ~~patterned etching surface~~.

18. (currently amended) The method of claim 15, wherein the step of isotropically wet etching ~~according to a wet etching process~~ ~~includes~~ comprises ~~the use of~~ a wet etching solution comprising ~~hydrofluoric acid~~ HF and glycol.

19. (currently amended) The method of claim 18, wherein the wet etching solution ~~includes~~ comprises ~~a mixture of hydrofluoric acid (HF) and glycol within a range of concentration of from~~ ~~about a ratio of 1 part HF to 10 parts glycol to about a ratio of~~ 1 part HF to 100 parts glycol.

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20. (currently amended) The method of claim 15, wherein the ~~width portion outlines a gate structure and~~ hard mask dimensions following the isotropic wet etching process ~~comprise a width is reduced to from~~ about 10 ~~nanometers to about 50 nanometers~~ 50 percent to about 90 percent.

21. (new) The method of claim 1, wherein the hard mask dimensions following the isotropic wet etching process comprise a width reduced from about 50 percent to about 90 percent.

22. (new) The method of claim 8, wherein the wet etching solution comprises HF.

23. (new) The method of claim 17, wherein simultaneously spinning comprises a spin rate of about 300 to about 2000 revolutions per minute.

24. (new) The method of claim 15, wherein an etch rate is reduced as a critical dimension is approached.